



"Roush, Randy"  
<raroush@state.pa.us  
>

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To: Group Rcra-Docket@EPA  
cc: "Fidler, Thomas" <tfidler@state.pa.us>, "Hogeman, David"  
<dhogeman@state.pa.us>, "Fang, Samuel" <sfang@state.pa.us>,  
"Hess, Dave" <dahess@state.pa.us>  
Subject: ATTN:Docket ID No. RCRA-2002-0033

Dear Sir or Madam:

The Pennsylvania Department of Environmental Protection (PADEP) is pleased to submit comments on EPA's "Draft Guidance For Evaluating The Vapor Intrusion to Indoor Air Pathway From Groundwater And Soils (Subsurface Vapor Intrusion Guidance)". These comments apply to EPA Document Number RCRA -2002-0033.

<<CommentsonEPAVapor.doc>>

Sustainability for PA - It's in Our Hands  
<http://www.dep.state.pa.us/earthdaycentral/03/>



CommentsonEPAVapor.doc

Rachel Carson State Office Building  
P.O. Box 8471  
Harrisburg, PA 17105-8471  
February 26, 2003

Bureau Of Land Recycling  
and Waste Management

717-783-7816

OSWER Docket (MC 5305 - G)  
U.S. Environmental Protection Agency  
Ariel Rios Building  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Re: EPA Document Number: RCRA-2002-0033  
"Draft Guidance For Evaluating The Vapor Intrusion to Indoor Air Pathway From  
Groundwater And Soils (Subsurface Vapor Intrusion Guidance)"

Dear Sir or Madam:

On behalf of the Pennsylvania Department of Environmental Protection (PADEP) Land Recycling Program and its Cleanup Standards Scientific Advisory Board Risk Assessment Subcommittee, we have reviewed the **EPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Docket ID No. RCRA – 2002-0033)** and are providing comments on this document for consideration.

Our subcommittee was formed in early 2001 to investigate and develop a screening approach under the Pennsylvania Land Recycling Act (Act 2), that would address the vapor intrusion pathway from subsurface contaminated soils and groundwater. This group addressed this pathway by customizing previously developed approaches to meet the needs of the Act 2 program. The screening process is built on very conservative assumptions and is used under the Statewide Health Standard and also gives the option to further evaluate the pathway on a site-specific basis. The draft PADEP document was released in February 2002 with anticipation of a final in Spring 2003.

Thank you for the opportunity to provide comments on this document.

### **Comments**

1. As stated in Section I.B. of this draft guidance, "*a complete pathway means that humans are exposed to vapors originating from site contamination.*" "*For those sites determined to have a complete pathway, recommendations are provided on how to evaluate whether the pathway does*

*or does not pose a potential significant risk to human health.”* Section III opening paragraph also states, *“If contaminant vapors do not enter the building, the exposure pathway from the source of contamination to a person (receptor) is not complete, and in such circumstances the person cannot be considered to be at risk from indoor air exposure due to vapor intrusion. In other situations, vapors may enter the building, but be present at such low levels that the risk is considered negligible. However, in some cases, vapors may seep into a building and accumulate at levels that may pose an unacceptable risk to human health.”*

These discussions are consistent with the complete pathway concept in Section 6.3.4 of EPA’s Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A - *“A pathway is complete if there is (1) a source or chemical release from a source, (2) an exposure point where contact can occur, and (3) an exposure route by which contact can occur. Otherwise, the pathway is incomplete, ...”* From the above discussions, it is clear that a complete pathway determination is based on whether there is an exposure or not, not based on whether the pathway would pose a potential significant risk to human health or not.

Unfortunately, these complete pathway and incomplete pathway concepts were not carried out to the rest of the document. For example, in Figure 2, Tier 2 - Secondary Screening, Question 4, it is stated, *“If appropriate data do not exceed target media concentration, pathway is considered to be incomplete”*.

When appropriate data do not exceed target media concentration, it could mean that there is still an exposure, i.e., the pathway is complete, but the risk associated with the exposure is considered negligible. By mixing the incomplete pathway concept with negligible risk, as in the case in Figure 2, Tier 2 - Secondary Screening, Question 4, it created a lot of confusion. So, it is recommended to replace *“pathway is considered to be incomplete”* with *“the risk associated with the exposure is considered negligible”*.

The above comment is also applicable to other parts of the draft guidance, including, but not limited to:

- **Figure 2, Tier 2 - Secondary Screening, Question 5:** Replace *“pathway is considered to be incomplete”* with *“the risk associated with the exposure is considered negligible”*.
- **Figure 2, Tier 3 - Site Specific Pathway Assessment, Question 6:** Replace *“Determine if exposure pathway is complete.”* with *“Determine if exposure is considered negligible.”*
- **Page 8, Tier 2 - Secondary Screening, last sentence:** Replace *“the pathway is incomplete”* with *“the risk associated with the exposure is negligible”*.
- **Page 25, Q4(f), If NO:** Delete *“is incomplete and/or”*. Replace *“the pathway is incomplete, we recommend ...”* with *“the risk associated with the exposure is negligible, we recommend ...”*.
- **Page 25, Q4(f), last paragraph, last sentence:** Delete *“the completeness of”*.
- **Page 26, Q4(h), last paragraph, last sentence:** Delete *“the completeness of”*.
- **Page 26, Q4(i), If NO:** Delete *“is incomplete and/or”*.
- **Page 26, Q4(i), last paragraph, last sentence:** Delete *“the completeness of”*.
- **Page 29, first paragraph, first sentence:** Replace *“the vapor intrusion pathway is complete”* with *“the risk associated with the vapor intrusion pathway is negligible”*.

- **Page 32, Q5(b), last paragraph, last sentence:** Delete *“the completeness of”*.
- **Page 32, Q5(c), last paragraph, last sentence:** Delete *“the completeness of”*.
- **Page 33, Q5(e), If NO:** Delete *“is incomplete and/or”*. Replace *“the pathway is incomplete, EPA recommends ...”* with *“the risk associated with the exposure is negligible, EPA recommends ...”*.
- **Page 33, Q5(f), If NO:** Delete *“is incomplete and/or”*.
- **Page 38, first sentence:** Delete *“the existence of”*.
- **Page 40, Q6(c), If NO:** Delete *“is Incomplete and/or”*.
- **Page 40, Q6(f), If YES:** Delete *“is Incomplete and/or”*.
- **Page 41, Q6(h), If YES:** Delete *“is Incomplete and/or”*.
- **Page 41, Q6(i), If YES:** Replace *“Pathway is Complete”* with *“risk associated with the vapor intrusion pathway is unacceptable.”*
- **Page 42, #2:** Replace *“we recommend that the vapor intrusion pathway be considered incomplete and/or does not pose an unacceptable risk to human health”* with *“we recommend that further evaluation of the vapor intrusion pathway be unnecessary”*. Delete *“we recommend that the pathway be considered complete. In such case,”*
- **Page 43, #5, first sentence:** Replace *“vapor intrusion pathway is complete”* with *“risk associated with the vapor intrusion pathway is unacceptable.”*
- **Page 45, #8:** Replace *“What do you do if the pathway is found to be complete”* with *“What do you do if the risk associated with the vapor intrusion pathway is found to be unacceptable”*. Replace *“If the pathway is judged to be complete”* with *“If the risk associated with the pathway is judged to be unacceptable”*. Replace *“the pathway be considered to remain complete”* with *“the risk associated with the pathway be considered unacceptable”*.
- **Page 48, Table, fourth heading:** Replace *“Data Indicates Pathway is Complete”* with *“Data Indicate Risk is Unacceptable”*.
- **Page 48, Site-Specific Summary, first bullet, last sentence:** Delete *“is Incomplete and/or”*.
- **Page 49, Conclusion, first sentence:** Replace *“Is there a Complete Pathway for subsurface vapor intrusion to indoor air ”* with *“Does the vapor intrusion pathway pose an unacceptable risk”*.
- **Page 49, Conclusion, NO:** Replace *“Subsurface Vapor Intrusion to Indoor Air Pathway has been verified to be incomplete”* with *“The vapor intrusion pathway does not pose an unacceptable risk”*.
- **Page 49, Conclusion, YES:** Replace *“Subsurface Vapor to Indoor Air Pathway is Complete”* with *“The vapor intrusion pathway does pose an unacceptable risk”*.
- **Appendix C, Flow Diagrams, Questions 4 - 6:** Replace *“Pathway Is Incomplete”* with *“Negligible Risk, No Further Evaluation”*. Replace *“Pathway Incomplete”* with *“Negligible Risk”*. Replace *“Pathway Is Complete”* with *“Unacceptable Risk”*.

2. The 100-foot vertical distance appears to be very conservative. This distance was based on a policy decision and on one empirical case study. This vertical distance should be more flexible and determined on a case-by-case basis.

3. The draft guidance considers that the preferential pathway be evaluated if it is 100 feet or

more from the contamination. Is this based on any lateral vapor migration studies?

4. EPA does not recommend soil sampling or establish soil target levels because of the uncertainties in sampling, analytical, spatial variability, and partitioning issues. EPA does recommend conducting soil gas sampling (subslab) with comparison to established soil gas target levels. The same concerns can be associated with soil gas sampling as well as soil sampling. These should be acknowledged in the guidance.
5. As a practical matter, PADEP finds the document overly complex and cumbersome to use. The forms/tables originally intended for EI determination are overly prescriptive and do not work well in the current format of the Guidance document. Also, the appendices while providing relevant information and resources, places too much emphasis on very detailed and complex analysis. PADEP suggests that the format of the document be simplified.
6. **Page 11- Measurement of VOCs in the Subslab Soil Gas** - The guidance in this section does not seem to be based on a large number of sampling events or upon data that have been validated (or peer reviewed?). Also, there are no specific precautionary statements about damaging foundations, creating vapor migration pathways and access or liability concerns stated in this paragraph.
7. **Page 13- Appendix I - Unsupported Recommendations:** This appendix provides recommendations for addressing background indoor air sources with little or no data available to indicate whether these recommendations would be effective. For example, there appears to be little data to indicate whether removal of suspected indoor air sources will significantly reduce background indoor air concentrations or whether building materials or other non-removable sources are more significant contributors in many homes. Recommendations not supported by data should be removed from the guidance.

Sincerely,

Thomas K. Fidler  
Chief  
Land Recycling and Cleanup Program